

REMARKS

A reconsideration is requested of Claims 1, 3-11 and 14. Claims 2, 12 and 13 have been allowed.

Claims 3 and 6-10 stand rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention.

As a result, Applicants have amended Claims 3 and 6 to incorporate the suggestions made by the Examiner. Accordingly, withdrawal of the rejections based on 35 U.S.C. §112, second paragraph, is respectfully requested.

Claims 1, 4, 5, 11 and 14 stand rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 4,109,792 to *Greenawalt et al.*

On page 4 of the Official Action, the Examiner sets forth a response to Applicants' arguments filed with the response of May 29, 2003. In particular, the Examiner emphasizes that independent Claims 1, 4 and 5 do not include the phrase "wherein the cutting operation is performed before the sealing operation while the tube is continuously filled with a pourable food product." As a result, this recitation has been added to each of independent Claims 1, 4 and 5. It is submitted that independent Claims 1, 4 and 5 now define over *Greenawalt et al.*

Greenawalt et al. discloses a method and an apparatus for forming side gusseted industrial bags from a vertical tube of thermally sealed material, which is clamped along equally spaced cross sections by pairs of sealing heads 42, 44. In particular, the sealing

heads 42, 44 of each pair are so shaped to clamp the relative cross section of the tube along two different zones spaced in the vertical direction; the clamping pressure effects a generally gas-tight closure of the tube along the clamped zones, leaving the tube essentially free of mechanical clamping pressure between said zones (see Figure 28 and column 19, claim 1). As clearly disclosed in Figures 3 and 4 and stated in the description (column 5, line 51- column 6, line 40), the product is periodically introduced into the tube after the bottom end of the bag has been sealed by a relative pair of sealing heads 42, 44 and before the top end of the bag is in turn clamped by another pair of sealing heads 42, 44. More precisely, the product is weighed in a chamber 68 and then fed to the tube through a movable gate 74. The sealing heads 42, 44 of *Greenwalt et al.* act on empty portions of the tube, i.e., on portions of the tube not containing product.

Each pair of sealing heads 42, 44 are defined by respective blocks 294, 360 having respective internal elongated rectangular cavities 314, 392 open towards the tube. A movable cutter head 318 is housed in a sliding manner into the cavity 314 of the sealing head 44, while a hollow welding head 394 is rigidly secured inside the cavity 392 of the sealing head 42 and is adapted to cooperate with the cutter head 318 during the cutting and sealing operations performed on the tube. The cutter head 318 comprises a central portion carrying a knife 342 and an aligned series of passages or exhaust ports 346 on each side of the knife 342. The hollow welding head 394 is opened towards the bottom of the cavity 392 of the sealing head 42 so as to define a channel 398 connected to a gas circuit through valve means; the hollow welding head 394 is also provided with directional slots 406

adapted to put into communication the above mentioned channel 398 with the portion of the tube clamped between the sealing heads 42, 44.

As explained on column 14, lines 5-40, almost simultaneously with the clamping of the packaging material, the cutter head 318 is moved forward to perform a cutting operation on the tube. As clearly shown in Figure 28, the cut ends 432, 434 of the tube are drawn away from the knife 342 so as to define a space between the cut ends 432, 434 which communicates with the exhaust ports 346. At this moment, a heated welding gas, such as air, is introduced into the channel 398; the hot gas flows at high velocity through the directional slots 406 of the sealing head 42 and through the space between the cut ends 432, 434 of the tube until it reaches the exhaust ports 346 of the sealing head 44. The cut ends 432, 434 of the tube are therefore bathed in hot gas to a molten or near molten condition (col. 14, lines 41-43). Subsequently, in a similar way, a cold gas is introduced into the channel 398; the cooling gas stream is directionally applied to the molten cut ends 432, 434 to obtain the welding.

Independent Claims 1, 4, and 5 of the present application refer to a method and a unit for producing sealed packages containing pourable food products from a tube of heat seal sheet packing material fed along a vertical path, "wherein the cutting operation is performed before the sealing operation while the tube is continuously filled with the pourable food product". In contrast, in *Greenwalt et al.*, the product is periodically, and not continuously, introduced in the tube, and the sealing heads 42,44 act on empty portions of the tube. The tube is essentially free of mechanical clamping pressure between the

zones clamped by each pair of sealing heads 42,44. The cutting operation is performed before the sealing operation since, in this way, a space is generated between the knife 342 and the cut ends 432, 434 of the tube for allowing the hot gas to flow from one sealing head (42) to the other (44), striking the extreme portion of said ends (Figure 28). The temporal succession of the steps of cutting and sealing is closely dependent on the use of the hot gas to perform the sealing; in other words, the sealing could not be performed without having previously cut the tube. As such, *Greenwalt et al.* fails to disclose the patentable features of independent Claims 1, 4, and 5.

In addition, it is submitted that one having ordinary skill in the art would not modify *Greenwalt et al.* to obtain the features of the present invention. In particular, the apparatus and method disclosed in *Greenwalt et al.* is only suitable for intermittent feeding of the product. In fact, in order to allow the hot gas to flow between the two sealing heads 42, 44, a space has to be provided between the knife 342 and the two zones along which the packaging material is clamped by the opposite end portions of the blocks 294, 360 of the sealing heads 42, 44. Furthermore, the tube is essentially free of mechanical clamping pressure between the two zones clamped by the sealing heads 42, 44 so that the cut ends 432, 434 of the tube can be drawn away from the knife 342 during the cutting action, allowing the flow of the hot gas. It is quite evident that a similar solution cannot be applied on a tube continuously filled with a liquid product; in fact, should it be applied, the clamping action combined with the cutting of the packaging material before sealing would produce a squeezing effect on the liquid contained in the tube, which may flow within the

exhaust ports 346 and the channel 398 of the sealing heads 42, 44, preventing the subsequent flow of the hot gas.

In the light of the above, Applicants submit that one having ordinary skill in the art, at the time of the invention, would have disregarded the solution disclosed in *Greenwalt et al.*, since it is not suitable for tubes of packaging material continuously filled with pourable food products.

Moreover, even if the skilled person in the art had considered the solution disclosed in *Greenwalt et al.*, he should have understood that the teaching of cutting the tube before sealing would have been applicable to continuously filled tubes only by changing the system of sealing. There is no incentive in *Greenwalt et al.* to do so.

For at least the foregoing reasons, it is submitted that the method and unit of independent Claims 1, 4 and 5, and the claims pending therefrom, are patentable distinguishable over the applied document. Accordingly, withdrawal of the rejections of record and allowance of this application are earnestly solicited.

Should any questions arise in connection with this application, or should the Examiner believe a telephone conference would be helpful in resolving any remaining issues pertaining to this application, the undersigned respectfully requests that she contacted at the number indicated below.

Respectfully submitted,

BURNS, DOANE, SWECKER & MATHIS, L.L.P.

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By: Elaine P. Spector
Elaine P. Spector
Registration No. 40,116

P.O. Box 1404
Alexandria, Virginia 22313-1404
(703) 836-6620